

WE CLAIM:

1. A polymer netting comprising a plurality of oriented strands extending in a first direction the strands having a first face and a second face and two side faces, a second
5 set of strands attached only to said first face of said oriented strands.

2. The polymer netting of claim 1 wherein said second set of strands are mutually parallel and have a first face and a second face and two substantially parallel side faces and are substantially coextensive.
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3. The polymer netting of claim 1 wherein said second set of strands second faces are attached to said first set of oriented strands at their crossover points.

4. The polymer netting of claim 1 wherein said first set of oriented strands
15 occupy a first planar cross-sectional area in the thickness direction of the netting and said second set of oriented strands occupy a second planar cross-sectional area in the thickness direction of the netting.

5. The polymer netting of claim 4 wherein said first and second planar cross-sectional areas are substantially mutually exclusive and abutting.
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6. The polymer netting of claim 1 wherein said second set of strands have a substantially rectilinear cross-section.

7. The polymer netting of claim 1 wherein said second set of strands are linear.
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8. The polymer netting of claim 6 wherein adjacent strands of said second set of strands have a substantially identical cross-sectional shape in said first direction.
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9. The polymer netting of claim 1 wherein said second set of strands have surface structures on said first faces of the strands.

10. The polymer netting of claim 9 wherein said surface structures are stems extending upward.

5 11. The polymer netting of claim 10 wherein said stem structures have hook elements projecting in at least one direction.

12. The polymer netting of claim 11 wherein said hook elements extend in the direction of the second set of strands.

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13. The polymer netting of claim 11 wherein said hook elements extend in two or more directions and form a mushroom.

14. The polymer netting of claim 1 wherein said first set of strands have surface structures on said second face of said strands.

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15. The polymer netting of claim 14 wherein said surface structures are stems extending upward.

20 16. The polymer netting of claim 15 wherein said stem structures have hook elements projecting in at least one direction.

17. The polymer netting of claim 16 wherein said hook elements extend in a direction perpendicular to said first direction.

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18. The polymer netting of claim 1 wherein said first and second set of strands are integrally formed.

19. The polymer netting of claim 18 wherein said polymer is a thermoplastic polymer.

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20. A method for forming a thermoplastic polymer netting comprising simultaneously extruding a polymer film having at least on one face a plurality of integral strand structures, which strand structures extend in a first direction, cutting said formed film in a second direction at an angle to said first direction at multiple cut lines
5 substantially through the entire film so as to form a plurality of cut portions, orienting said cut film in said first direction so as to separate said cut portions forming a second set of strands and thereby orienting said integral strand structures.

21. The method for forming a thermoplastic polymer netting of claim 20
10 wherein said cutting of said film is through the entire film so as to form separate discrete second strands from said second set of strands.

22. The method for forming a thermoplastic polymer netting of claim 20
15 wherein said film has extruded structures on said second face.

23. The method for forming a thermoplastic polymer netting of claim 22
wherein said structures on said second film face form stems on said second set of strands.

24. The method for forming a thermoplastic polymer netting of claim 20
20 further comprising stretching said second set of strands so that said second strands are oriented at an angle to said first direction.

25. The method for forming a thermoplastic polymer netting of claim 23
25 wherein said stems form hook elements

26. The method for forming a thermoplastic polymer netting of claim 25
further comprising heat treating the hook elements following formation of the hook elements to alter the shape and or dimensions of the hook elements

27. A self-engaging bundling material comprising a plurality of oriented
30 strands extending in a first direction the strands having a first face and a second face and two side faces, a second set of strands attached only to said first face of said oriented

strands wherein one of said sets of strands have hook structures on an outward facing face of the strands.

5 28. A polymer netting comprising a first set of a plurality of strands extending in a first direction formed of at least a first layer of thermoplastic resin and having a first face and a second face and two side faces, a second set of strands formed at least of a second layer of thermoplastic resin, said second set of strands attached only to said first face of said first set of strands.

10 29. A polymer netting of claim 28 wherein the first and/or second set of strands are elastic.

 30. A polymer netting of claim 29 wherein the netting is an open netting.

15 31. A polymer netting of claim 30 wherein at least one of the first or second set of strands are oriented and formed of an inelastic thermoplastic resin.

 32. The polymer netting of claim 28 wherein said second set of strands are mutually parallel and have a first face and a second face and two substantially parallel side
20 faces and are substantially coextensive and attached only to said first face of said first set of strands.

 33. The polymer netting of claim 28 wherein said second set of strands second faces are attached to said first set of oriented strands at their crossover points.

25 34. The polymer netting of claim 33 wherein said first set of strands occupy a first planar cross-sectional area in the thickness direction of the netting and said second set of oriented strands occupy a second planar cross-sectional area in the thickness direction of the netting.

30 35. The polymer netting of claim 34 wherein said first and second planar cross-sectional areas are substantially mutually exclusive and abutting.

36. The polymer netting of claim 28 wherein said second set of strands have a substantially rectilinear cross-section.

5 37. The polymer netting of claim 28 wherein said second set of strands are linear.

38. The polymer netting of claim 28 wherein adjacent strands of said second set of strands have a substantially identical cross-sectional shape in said first direction.

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39. The polymer netting of claim 32 wherein said second set of strands have surface structures on said first faces of the strands.

15 40. The polymer netting of claim 39 wherein said surface structures are stems extending upward.

41. The polymer netting of claim 40 wherein said stem structures have hook elements projecting in at least one direction.

20 42. The polymer netting of claim 41 wherein said hook elements extend in the direction of the second set of strands.

43. The polymer netting of claim 41 wherein said hook elements extend in two or more directions and form a mushroom.

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44. The polymer netting of claim 28 wherein said first set of strands have surface structures on said second face of said strands.

30 45. The polymer netting of claim 44 wherein said surface structures are stems extending upward.

46. The polymer netting of claim 45 wherein said stem structures have hook elements projecting in at least one direction.

5 47. The polymer netting of claim 46 wherein said hook elements extend in a direction perpendicular to said first direction.

48. The polymer netting of claim 28 wherein said first and second set of strands are integrally formed.

10 49. The polymer netting of claim 29 wherein said first set of strands are elastic and extend in the longitudinal direction and the second set of strands are inelastic and extend in the cross direction.

15 50. The polymer netting of claim 49 wherein said netting is substantially closed when not under tension and opens when placed under longitudinal tension.

51. The polymer netting of claim 29 wherein said first set of strands are inelastic and extend in the longitudinal direction and the second set of strands are elastic and extend in the cross direction.

20 52. The polymer netting of claim 51 wherein the first set of stands are oriented and the netting is an open netting.

25 53. A method for forming a thermoplastic polymer netting comprising simultaneously extruding a polymer film layer formed of a first thermoplastic resin and a second thermoplastic resin layer forming on one face of the film layer a plurality of integral strand structures, which strand structures extend in a first direction, cutting said formed film in a second direction at an angle to said first direction at multiple cut lines substantially through the entire film so as to form a plurality of cut portions.

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54. The method of claim 53 wherein the first thermoplastic resin layer is elastic and the method further includes the step of orienting said cut film in the first direction so as to separate said cut elastic portion forming an elastic netting.

5 55. The method of claim 53 wherein said strands formed from a substantially inelastic second layer.

56. The method of claim 53 wherein said strands formed from a substantially second inelastic second layer.

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57. The method for forming a thermoplastic polymer netting of claim 53 wherein said cutting of said film is through the entire film so as to form separate discrete second strands from said second set of strands.

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58. The method for forming a thermoplastic polymer netting of claim 53 wherein said film has extruded structures on said second face.

59. The method for forming a thermoplastic polymer netting of claim 58 wherein said structures on said second film face form stems on said second set of strands.

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60. The method for forming a thermoplastic polymer netting of claim 59 wherein said stems form hook elements

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